

A Comparative Study of Social Capital and Quality of Life in Delhi and Tehran

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ABSTRACT: This is a comparative study of social capital's impact on quality of life in Delhi and Tehran. It aims to identify significant difference in impact of social capital on quality of life in Delhi and Tehran. It also aims to get optimum combination of social capital's cognitive and structural elements which have significant relationship with quality of life for both societies. For the purpose of research, the study has used positivistic methodology and deductive logic of inquiry. Furthermore, survey method along with Geographical Information System (GIS) has been used. As material a Household Schedule Interview Form (HSIF) and a Global Position System (GPS) device have been used for collecting the subjective and spatial data. To generate, analyze and obtain the operational model for social capital and quality of life in both societies, statistical and geographical multiple analysis methods have been used. As result multiple regressions indicate that in both societies there is a significant relationship between social capital and quality of life ($\text{sig} = 0.000$) and null hypothesis is rejected for both Delhi and Tehran. In addition, there is significant difference in impact of social capital on quality of life in Delhi and Tehran [$F(2, 6598) = 11102.1, \text{sig} = 0.000$]. Finally, the multiple regressions indicates that all five indicators of social capital are accepted as predictors of quality of life in Delhi, whereas in Tehran excluding communication, rest of the four indicators viz. view towards locality, social participation, social trust, and local solidarity are entered in the model as predictors of quality of life. In the model of Delhi social capital indicators are explaining 77% of variances in quality of life whereas in the model of Tehran 68% of the variances in quality of life scores is explained by social capital indicators.

Keywords: Social Capital, Quality of Life, Geographical Information System, Global Position System

INTRODUCTION

The common goal of development in local, national, and international level is to promote the quality of life. The future of human beings' life is dependent on better understanding of elements that have been bearing on the quality of life of human beings. Parts of these elements are related to the quality of our relationships with others, formal and informal groups and institutions; that are expressed as social capital and as a lost element of development. Expanding and facilitating of communication and social ties promotes the access level of individuals and groups to economic and social resources. These ties and communications, act as a type of glue so that the elements present in the society would be connected together and cumulative functions such as social cooperation, social support will be facilitated. Presence of cumulative functions and solving the issues and problems in a group form will result in better utilization of social resources, decrease in social expenses, and increase in the efficiency of economic, social, and development planning in the society. A number of studies have shown that inefficiency in most of the economic, political, and social plans that have been executed in some of regions are related to the condition of the relations and ties present among those people with each

other, with official organizations, and the norms that stabilized them. Therefore, we could claim that the quality of life, in its different dimensions, is under the influence of the quality of communications and social ties. The cities of Tehran and New Delhi, due to its immigrant receiving feature, have located numerous tribal and religious groups. This has created an asymmetrical composition regarding the quality of life and social capital forms.

In this paper efforts have been made to answer the following questions:

- Is there any relationship between social capital and quality of life in Delhi and Tehran?
- Is there a significant difference in quality of life according to the level of social capital between Delhi and Tehran?
- To what extent the predictors of social capital can explain the quality of life's variances in both societies?
- What is the optimum model of social capital which is impacting quality of life for both Tehran and Delhi?

A Brief Survey of Literature on Social Capital and Quality of Life

❖ Social Capital

Regarding social capital literature, the sense in which the term is used today, dates back more

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than 90 years to the writings of *Lyda J. Hanifan* in 1916, the superintendent of schools in West Virginia. Explaining the importance of community participation in enhancing school performance, Hanifan invoked the concept of social capital. She stated that social capital included “those intangible substances that count for most in the daily lives of people – namely goodwill, fellowship, sympathy, and social intercourse among the individuals and families who make up a social unit” (*Woolcock and Narayan 2000*).

After Hanifan the idea of social capital disappeared for several decades but was reinvented in the 1950s by a team of Canadian urban sociologists (*Seely, Sim, and Loosely 1956*). In 1956, *Jane Jacobsen* in her book *The Death and Life of Great American Cities* applied the concept of social capital as social networks that could perform the role of social control. She believed that the depth urban networks in old and mixed regions of the cities, establish a form of the social capital that is more responsible regarding the subjects related to environment health and hygiene, non-existence of crimes and street offences, and other decisions related to promotion of quality of life in comparison to the institutional and official authorities responsible for hygiene, security and disciplinary affairs (*Fukuyama, 1999*). Therefore, Jacobsen considers the local resources in shaping the social capital and also their role in promoting the people’s quality of life. None of these writers, interestingly, cited earlier work on the subject, but all used the same umbrella term to encapsulate the vitality and significance of community ties. The seminal research by *Coleman (1988, 1990)*, on education and by *Putnam (1993, 2000)*, on civic participation and institutional performance, however, has provided the inspiration for most of the current work, which has since coalesced around studies in nine primary fields: families and youth behavior; schooling and education; community life (virtual and civic); work and organizations; democracy and governance; collective action; public health and environment; crime and violence; and economic development (*Woolcock and Narayan 2000*).

❖ Quality of Life

During the past decades, due to the dominance of the viewpoints related to economic development, completely quantitative measures such as per capita income were used to evaluate the level of welfare and quality of life. As first measure of quality of life

the physical criterion of quality of life (PQLI) was proposed by *Morris (1979)* and proceeded to cover more dimensions of quality of life in comparison to the previous indexes. This index included measures such as life expectancy at age one, infant mortality and literacy rate. However, still it was inefficient in covering all the dimensions of quality of life; and the selection of the variables and the weight dedicated to each of them had some shortcomings. A decade later, *Amartya Kumar Sen (1987)*, proposed the concept of standard of living in this context. The emphasis was regarding the study and review of the index of quality of life by different scientific domains. *Dasgupta and Weale (1992)*, introduced an index for quality of life that included measures such as per capita income, life expectancy at birth, literacy level of mature people, and legal and political indexes such as civil freedoms. One of the most famous indexes of quality of life is the *Human Development Index (HDI)* that is used by *United Nations Development Plan (UNDP)* in preparing the reports on human development since 1990. The HDI with the assistance of three other indices of life expectancy at birth, educational achievements, and real gross domestic product per capita measure the quality of life in different countries in the framework of a scale of 0 to 100 (0 representing the worst performance and 100 the best) with respect to any indicator; and then it is obtained by a simple arithmetic average of the scale indicators (*Rahman et al. 2003*). Another index was introduced by *Seed and Greg (1997)*, in order to measure the quality of life. This index, with the assistance of measures such as economic development, environmental condition, health, economic stability, life satisfaction, and mental well being measures the quality of life. Another index was outlined by *Obsberg and Sharpe (1998)*, which named *Index of Economic Well-Being (IEWB)*. The IEWB with the assistance of the process of consumption, accumulation of produced shares, inequality in distribution of income, and lack of confidence in earning future income measure the level of people’s quality of life. In other words, the Economist Intelligence Unit has developed a new quality of life index based on a unique methodology that links the results of subjective life-satisfaction surveys to the objective determinants of quality of life across countries. Furthermore, some annual comprehensive surveys have been done on quality of life for demonstrating society’s progress. One of the most important quality of life surveys is

The Jacksonville Community Council Inc (JCCI) survey which has been carried out to improve the quality of life in Northeast Florida. The JCCI model includes nine elements viz. the economy, education, public safety, health, the natural environment, the social environment, politics/government, mobility, culture/recreation. Another survey has been outlined by Ministry of Social Development in New Zealand. The purpose of this survey was to provide information that contributes to the understanding of social, economic, and environmental conditions which can be used to describe and quantify the quality of life of those living in New Zealand's major urban areas. Considering all the efforts rendered in the direction of the concept of quality of life, still a measurement that could cover all its dimensions has not been presented.

Regarding the construct of social capital, we should indicate that although it has not been that long since the structure of social capital has been outlined seriously; however, during recent years, due to the role that this capital has played in the establishment and strengthening of economic, human, and physical capitals; it has significantly been considered by different domains of human sciences. Now, we will try to discuss about the theoretical framework of the study.

Theoretical Framework

During recent years, the research for the potential factors affecting development and its positive outcomes like quality of life has received much attention by social scientists. Within this context, researches about social capital have gained considerable prominence (*Abdul-Hakim et al. 2010; James 2009; Dekker 2007; Ferguson 2006; Requena 2003; Putnam 2000; Woolcock and Narayan 2000; Uphoff 1999*). A broad consensus exists on the importance of social capital for quality of life. The theoretical foundation of the concept of social capital is still in a nascent phase, and there is much debate about its definition, creation, and utility as well as its role in social policy, public policy and modernization strategies (*Encyclopedia of Sociology, 2000, 2638*). Moreover, as a theoretical concept, social capital holds great promise for furthering the sociological understanding of social action. Clearly, there is no single conceptualization of social capital, and but it is possible to categorize current conceptualization into two major categories. *Uphoff (1999)*, distinguishes between structural and cognitive social capital.

Structural social capital involves various forms of social networks and communications that contribute to co-operation and civic participation. Cognitive social capital includes norms, values, attitudes, beliefs, shared understanding and those variables that hold people together. Structural and cognitive social capitals are complimentary; structures help translate norms and beliefs into well coordinated goal-orientated behavior. Drawing from these structural and cognitive dimensions of social capital it is possible to conclude that there is no single construct called social capital, but rather, social capital can be understood as a composite of the central idea of social capital.

At the same time, *Woolcock and Narayan (2000)*, have given a new perspective on this context. They conclude that quality of life is based on complementarity and embeddedness. Complementarity refers to mutually supportive relations between public and private actors and is exemplified in legal frameworks that protect rights of association. Embeddedness refers to the nature and extent of the ties connecting citizens and public officials.

The notion of social capital should mediate the divergent orientations in social capital literature. Hence, the study's theoretical framework is based on *Woolcock and Narayan* in World Bank and *Uphoff's* conceptual framework. This framework is empirically verifying that a high level of embeddedness and complementarity between cognitive and structural dimensions of social capital of the residents in both Delhi and Tehran is associated with high level of quality of life.

Emphasizing on incorporating different dimensions of social capital and its recognition of the positive and negative outcomes can generate quality of life components in societies. This view attempts to integrate the compelling work emerging from the cognitive and structural social capital. This perspective endeavor to identify the nature and extent of a community's social relations and formal institutions, and the interaction between them; to develop institutional strategies based on these social relations; and to determine how the positive manifestations of social capital - cooperation, trust, and institutional efficiency - can offset sectarianism, isolationism, and corruption. As conceptual definition of social capital and quality of life constructs, Social Capital conceptually refers

to the institutions, relationships, and norms which is shaping the quality and quantity of a society's social interactions and like kind of glue holds them together (Woolcock and Narayan 2000). While, quality of life refers to the individual's subjective evaluation and their perception of their position in life which is incorporating physical health, mental and emotional state, level of safety, environmental quality, economic state, and their accessibility to social and public services (Philips 2006).

Following the above theoretical framework the theoretical model could be depicted in Figure 1. Based on this model social capital was defined in a broad manner, including both cognitive and structural forms. Five indicators of social capital were distinguished as independent variables: views towards locality, local solidarity, social trust (as cognitive social capital), social communication, and social participation (as structural social capital). In addition, quality of life was measured

by six indicators: local safety, health state, mental state, quality of environment, accessibility to social services, and economic state. Following the theoretical model six hypotheses are proposed as follows:

First hypothesis: There is no significant relationship between view towards locality and social capital in Delhi and Tehran.

Second hypothesis: There is no significant relationship between local solidarity and quality of life in both societies

Third hypothesis: There is no significant relationship between social trust and quality of life in Delhi and Tehran.

Forth hypothesis: There is no significant relationship between social communication and quality of life in Delhi and Tehran.

Fifth hypothesis: There is no significant relationship

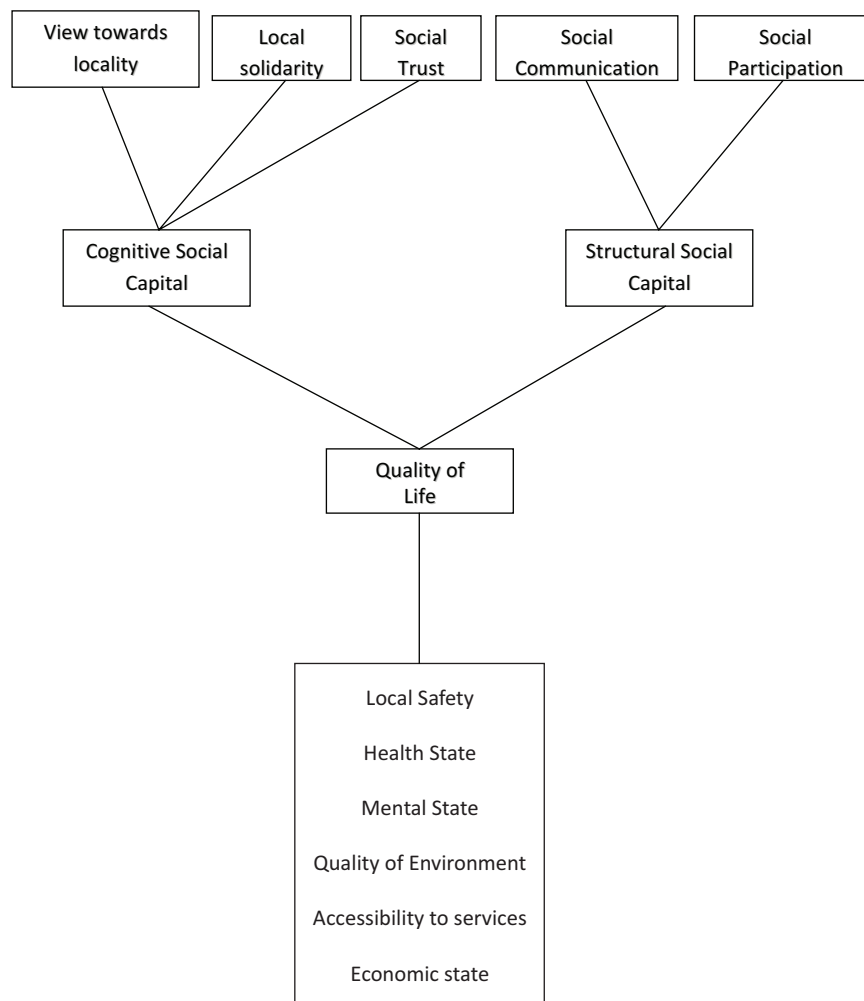


Figure 1: Therotical model for social capital and quality of life

between social participation and quality of life in Delhi and Tehran.

Sixth hypothesis: There is no significant difference in social capital's impact on quality of life between Delhi and Tehran.

Research Methodology and Techniques

This study attempts to check the positive and linear relationship between social capital and quality of life which is resulted in previous works. Additionally, the hypotheses which resulted from theoretical model will be tested. Therefore, in order to conduct the research and obtain the empirical model positivistic methodology and deductive logic of inquiry is employed in this study.

The method which is applied in this study is survey method. Survey is a means of gathering information, usually through self-report using scheduled interviews or questionnaires (Hutchinson 2004). The major assumption for using the survey in this study is that all respondents interpret survey questions in the same way; that is, a given item has the same meaning for everyone. This suggests that differences in response among respondents, as indicated by level of agreement on a particular item, for example, reflect true differences on the attitude, opinion, or behavior being measured, and not differences in interpretation of the item. The survey is designed to be representative at the level of area of interest and to facilitate analysis of the relationships between social capital and quality of life.

Other sources of data used in this study are Google Earths' satellite images in order to prepare base map, census reports published in survey of India and Iran, and allied economic surveys of India and Iran as secondary sources of data.

Since the types of information gathered from this survey are opinions, attitudes, facts, and spatial data the technique which is employed to collect the data is Household Schedule Interview Form (HSIF) and Global Positioning System (GPS) that provides reliable location for interested cases.

Variables

❖ **Social Capital Variables:** These are the key variables of the theoretical model as social capital indicators. Several multi-item scales have been constructed linking social capital variables to a set of related indicators. All of them have a good level of reliability. In order to check face and

content validity of the scales an expert panel was employed. The five indicators of the social capital viz. view towards locality, local solidarity, social trust (as representative of cognitive social capital), social communication, and social participation (as representative of structural social capital) are presented as follows:

- **View Towards Locality:** This variable mainly studies the perspective and attitude of the individual with respect to the living locality and neighbourhood. During the pre-test interviews in order to measure this variable, 14 items in the format of likert scale were applied. After checking the internal consistency and reliability of the indicator through Cronbach's coefficient alpha it is indicated that only 6 items out of the 14 items by 0.84 alpha value were retained. That is, internal consistency of this scale with 6 items was 84%.
- **Local Solidarity:** It implies a supporting structure for the groups in the locality. In other words, that exists when people are integrated by strong social bonds and shared beliefs and also are regulated by well developed guidelines for action (Hornsby 2007). The internal consistency of this scale with 6 items (out of 7 items presented in the pre-test interviews) was 0.78.
- **Social Trust:** Trust is defined in a relational term which is somehow central to the production of social glue among the social actors and cooperation in society. Social trust is a belief in the honesty, integrity and reliability of others – a "faith in people" (Cook 2007). The internal consistency of this scale with 9 items (out of 12 items presented to the respondents in pre-test interviews) was 92% (Cronbach's alpha = 0.92).
- **Social Communication:** Social communication connotes to the complex sets of relationships between members of the social system (Wellman 2007). Different types of communication with family, friends, and neighbours are considered in this study as items of this indicator. The internal consistency of this scale with 5 items (out of 7 items) was 72% (Cronbach's alpha = 0.72).
- **Social Participation:** Participation is accounting for expansion of inter-group and intra-group relations. It shows the level of peoples' involvement in socio-political and cultural issues. The internal consistency of this scale with 6 items (out of 9 items) was 87% (Cronbach's alpha = 0.87).

❖ **Quality of Life Variables:** These are also the key variables of the theoretical model as manifestations of quality of life indicators. Several multi-item scales have been constructed for the quality of life scales as well. All of them have a good level of reliability. The six indicators of the quality of life viz. local safety, health state, mental state, quality of environment, accessibility to social and public services, and economic state are presented as follows:

- **Local Safety:** Feeling safe and secure in our homes, localities and urban area is a basic human right. Feeling and being safe is a key to overall quality of life in any community. Safety and perceptions of safety highly feature in people's view and sense towards their quality of life. The internal consistency of this scale with 6 items was 87% (Cronbach's alpha = 0.87).
- **Health State:** Good health should result in a better quality of life. Health has both direct and indirect positive effects on quality of life. On one hand, improvement in health has immediate impact on person's quality of life and on the other hand, it may also indirectly increase the quality of life by acting on other indicators like economic state through increasing productivity. The internal consistency of this scale with 6 items (out of 14 items) was 70% (Cronbach's alpha = 0.70).
- **Mental/Emotional State:** How better life an individual has, not only depends on his/her income, health, and environment, but it is also affected by intensity of stress, depression and in general mental and emotional state. We assume that a better mental and emotional state is an indication of better quality of life. The internal consistency of this scale with 6 items (out of 11 items) was 65% (Cronbach's alpha = 0.65).
- **Quality of Environment:** Local environmental condition contributes to the way people feel about where they live and it indicates strongly the level of quality of life. Improvements in environmental aspects make up the living area and can help foster a good quality of life for the residents. The internal consistency of this scale with 9 items (out of 11 items) was 81% (Cronbach's alpha = 0.81).
- **Quality of Accessibility to Social Services:** Poor accessibility to social services can directly have a negative impact on the quality of life and on the other hand indirectly through its impact on economic, health, and sense of safety. The internal consistency of this scale with 10 items

(out of 16 items) was 84% (Cronbach's alpha = 0.84).

- **Economic State:** Economic condition has both direct and indirect impact on a family's quality of life. Improving the economic condition of the family directly impacts peoples' feeling about their quality of life on one hand and it improves the perceived quality of life through its impacts on health and mental state. The internal consistency of this scale with 8 items (out of 11 items) was 85% (Cronbach's alpha = 0.85).

Study Approach

In the current study, due to the nature of work and the type, information should be collected; respondents' self reports regarding their quality of life and social capital. The survey method is employed for gathering and generating the data according to the steps and approaches indicated in Figure 4. In the first step, the HSIF has been used for collecting the primary subjective data and also GPS is used for determining the respondents' location and collecting the spatial data like public and social services' location in both Delhi and Tehran. The household survey is intended to generate quantifiable indicators for the structural and cognitive dimensions of social capital, measuring individual households' stocks and accesses to social capital and it reports their quality of life in different dimensions. In the second step, in order to generate the both collected spatial and subjective data transferred to the Geographical Information System (GIS) software, that is ILWIS, after producing the database in Excel. After preparing the base map through georeferencing the satellite image, point maps are produced according to the data base which is imported to the ILWIS. Then, in order to make raster maps the existing data related to the independent and dependent variables are interpolated. Therefore, 34957 cases for Delhi and 32039 cases for Tehran were obtained through interpolation of the data. Afterward, the slice maps were produced to prepare quantitative distribution map for each variable. After producing the attribute maps as qualitative distribution maps again point maps were produced from generated data to export them to the Statistical Package of Social Sciences (SPSS) in order to obtain empirical models and compare the obtained data through multiple regression and two-ways analysis of variance techniques. In the final step, in order to obtain the model maps for both Delhi and Tehran, the existing

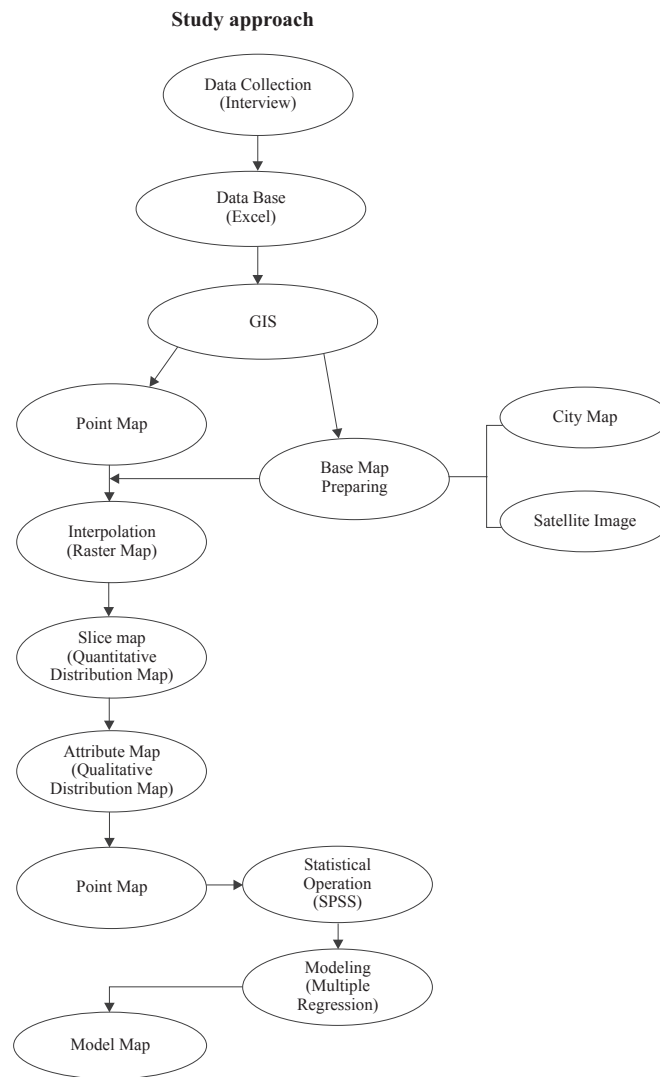


Figure 4: Study approach and its steps for generating data and obtaining the maps

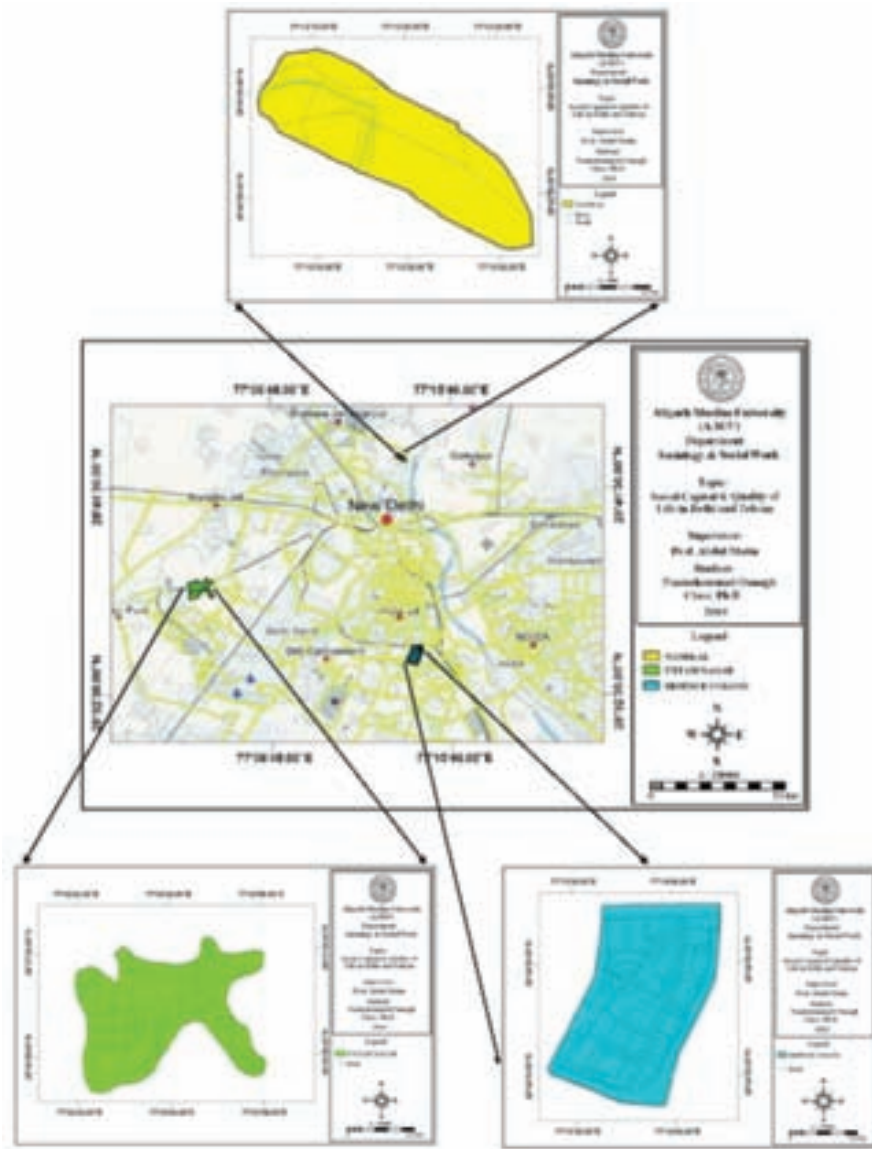
data are transferred to ILWIS based upon the results obtained from multiple regressions.

Study Area and Statistical Population

The present study is based on data collected from Delhi (Map 1) and Tehran (Map 2) between April to December 2009. Delhi is located in northern India between the latitudes of $28^{\circ} 24' 17''$ and $28^{\circ} 53' 00''$ north and longitudes of $76^{\circ} 50' 24''$ and $77^{\circ} 20' 37''$ east. Delhi shares its border with the states of Uttar Pradesh and Haryana. The Economic Survey of India (2008) recorded 3,214,000 households residing in Delhi. As the country's capital, with vibrant trade and excellent employment opportunities, Delhi has attracted people from all over the country and its population today reflects the characteristics of almost every region. Delhi truly reflects the wealth and diversity of India where in diverse religions,

languages, customs and cultures co-exist in splendid plural harmony. Religious, cultural and social functions of different socio-cultural groups have transformed Delhi into a city of festivals.

According to the geographic alignment Tehran is located between the latitudes of $35^{\circ} 35'$ and $35^{\circ} 45'$ north and longitudes $51^{\circ} 17'$ and $51^{\circ} 33'$ east. Tehran as capital of Iran and Tehran province with 2,267,892 households (census 2006) is largest city of Iran and Western Asia. In the Central Iranian Plateau, Tehran is bordered by the Alborz Mountains in the north and by the Kavir desert in the south with an area of about 800sq/m. Today Tehran marks a gigantic Iranian metropolis in approximately equal distance from eastern (Afghanistan) and western (Turkey, Iraq) borders in the Middle East. Representing all of Iran's urban and pastoral nomadic population Tehran defines the political and social forefront of



Map 1: Study area in Delhi

Iran. Tehran houses diverse ethnic and linguistic groups from all over the country and represents the ethnic/linguistic composition of Iran. The total number of households as statistical population of the current study is 5,481,892.

Sampling Method and Sample Size

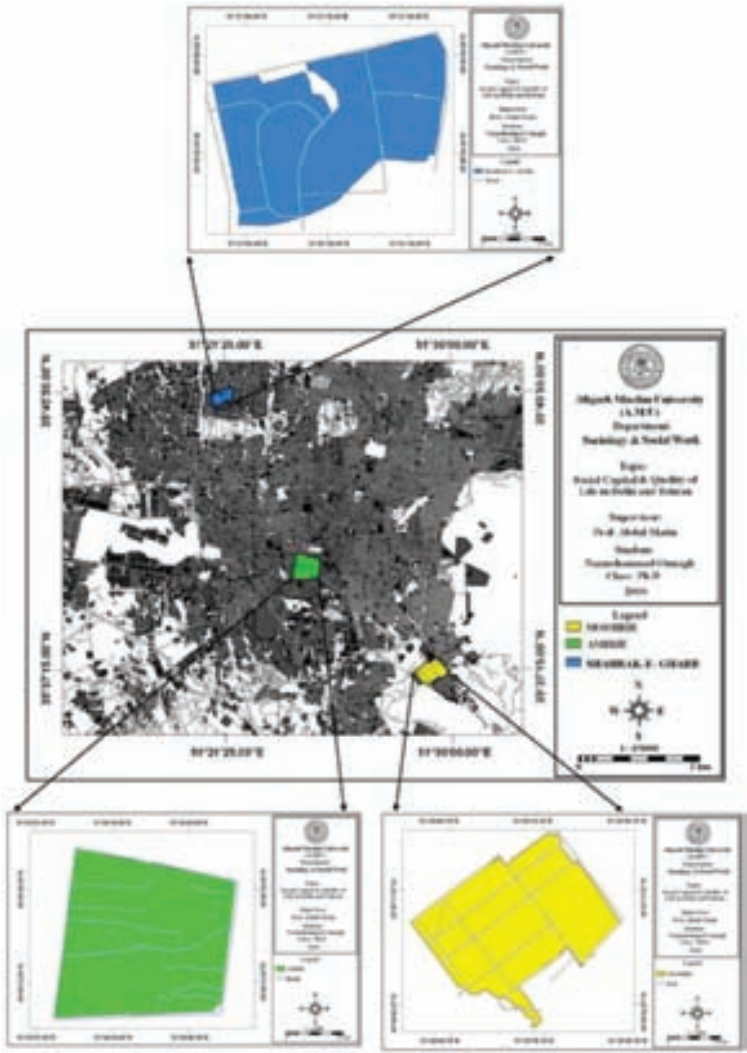
In the current study, the population is too large (5,481,892 households) and it is not feasible and too costly for the researcher to attempt to survey the whole population to get their opinion and views. According to the nature of the study which is pertaining to the quality of life and social capital in both heterogeneous societies the multistage sampling approach is chosen as sampling method. In the first stage both Delhi and Tehran are divided in three zone viz. well off zone, middle class zone,

and poor zone. Among different clusters which are encompassed in each zone, one of them is selected randomly. At the end, observation units are selected randomly in each selected clusters. According to Krejcie & Morgan's (1970), formula the sample size is 384 and 192 schedule interviews have been conducted in three localities of Delhi and 192 interviews in three localities of Tehran between March-December 2009. The formula is as follows:

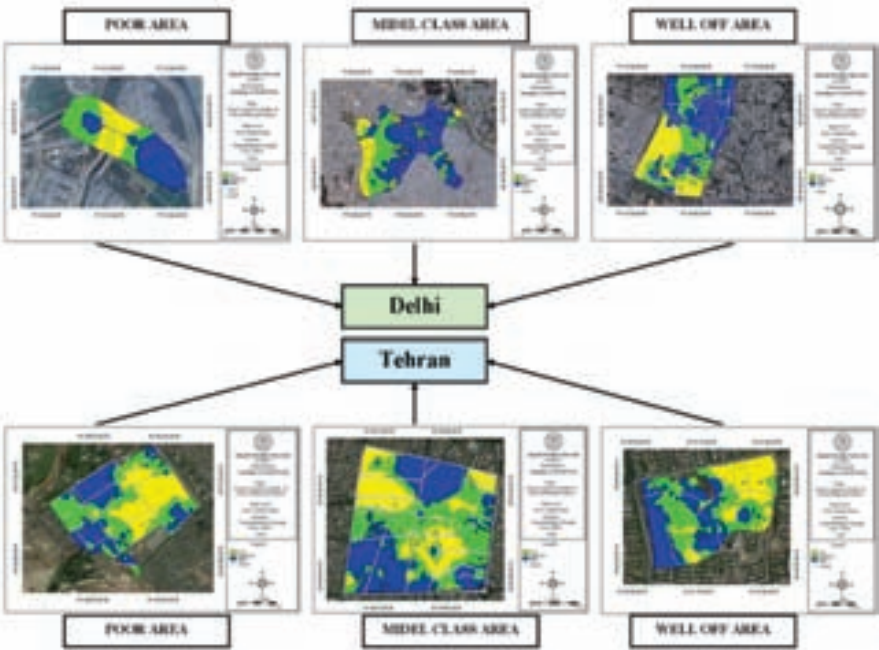
Where,

$$n = \frac{X^2 NP (1 - P)}{d^2 (N - 1) + X^2 P (1 - P)}$$

$$384 = \frac{(3.84) * (5,481,892) * (0.5) * (1-0.5)}{(0.0025) * (5,481,891) + (3.84) * (0.5) * (0.5)}$$



Map 2: Study Area in Tehran



Map 3: Comparison of empirical models of Delhi and Tehran

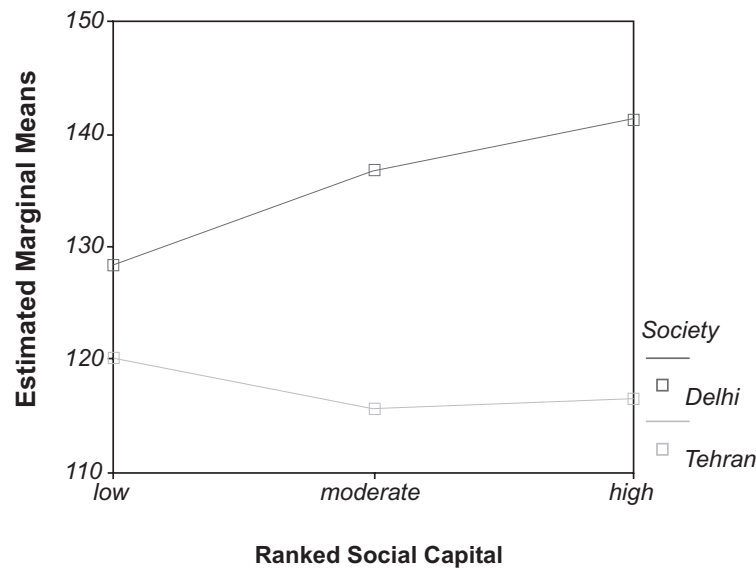


Figure 2: Estimated marginal means of quality of life

n = Sample size

N = 5,481,892 (population size)

$\chi^2 = 3.84$ (table value of chi-square at 0.05 confidence level)

P = 0.5 (population proportion)

d = 0.05 (accuracy level expressed as proportion)

Table 1: Cohen's guideline to determine the strength of the relationship

Correlation	Strength of the correlation
$r = .10$ to $.29$ or $r = -.10$ to $-.29$	small
$r = .30$ to $.49$ or $r = -.30$ to $-.49$	medium
$r = .50$ to 1.0 or $r = -.50$ to -1.0	large

Source: Pallant, Julie F. (2005), SPSS survival manual: a step by step guide to data analysis using SPSS. Sydney: Allen & Unwin publication. pp.126.

Results

In this section bivariate correlation analysis is used to describe the strength, direction and assess the significance level of the linear correlation between two variables. These features will help us to test some of our hypotheses. Depending on the level of our measurements all of which are in interval level, we will have to use a Pearson Product-Moment Correlation Coefficient to test the relational hypotheses for bivariate relations. In order to test main hypothesis a two-way between groups analysis of variance was conducted to compare the impact of social capital levels on quality of life in both societies. Finally to test the theoretical model of the study, the relationship between social capital and quality of life in both societies a multivariate regression will be used. In Table 2 the first thing to be considered is to assess the significance level to test the hypothesis.

Table 2: Adapted results from Pearson Correlation Coefficient and Multiple regressions to test hypotheses

Name of Variable	Delhi		Tehran	
	Value of correlation	P Value	Value of correlation	P Value
View towards locality and quality of life	0.840	0.000	0.786	0.000
Local solidarity and quality of life	0.661	0.000	-0.558	0.000
Social trust and quality of life	0.753	0.000	-0.198	0.000
Social communication and quality of life	0.197	0.000	-0.476	0.000
Social participation and quality of life	0.551	0.000	-0.487	0.000
Social capital and quality of life	0.887	0.000	0.826	0.000

Note: $H_0: r = 0$ (There is no significant correlation, therefore Null Hypotheses are accepted)

$H_1: r \neq 0$ (There is significant correlation, therefore Null Hypotheses are rejected)

If the Sig. value is less than 0.05, then with 95% confidence there is correlation between two variables and consequently the Null hypothesis is rejected and then alternative hypothesis is accepted. If the Sig. value is greater than 0.05, then we can conclude that there is no relationship between variables and, accordingly, the Null hypothesis is accepted. In order to determine the direction of the relationships the negative or positive sign in front of the r value will be considered. A negative sign means there is a negative correlation between the two variables (i.e. high scores on one variable is associated with low scores on the other) and a positive sign means there is a positive correlation between the two variables (i.e. high scores on one variable is associated with high scores on the other). For determining the strength of the relationships Cohen's guideline will be followed as follows in Table 1:

First hypothesis: There is no significant relationship between view towards locality and social capital in Delhi and Tehran.

Table 2 indicates that there is a strong, positive correlation between view towards locality and quality of life in both societies [$r = 0.840$ and 0.786 and $p < 0.01$], with high scores on positive view towards locality associated with high levels of scores on quality of life. Additionally, the P value shows that with 99% confidence the Null hypothesis is rejected and the alternative hypothesis is accepted.

Second hypothesis: There is no significant relationship between local solidarity and quality of life in Delhi and Tehran.

Table 2 indicates that there is a strong, positive correlation between local solidarity and quality of life in Delhi [$r = 0.661$ and $p < 0.01$], with high scores on local solidarity associated with high levels of

scores on quality of life. Whereas, there is a strong, negative correlation between local solidarity and quality of life in Tehran [$r = -0.558$ and $p < 0.01$], with high scores on local solidarity associated with low scores on quality of life. Additionally, in both societies the P value shows that with 99% confidence the Null hypothesis is rejected and the alternative hypothesis is accepted.

Third hypothesis: There is no significant relationship between social trust and quality of life in Delhi and Tehran.

Table 2 shows that there is a strong, positive correlation between social trust and quality of life in Delhi [$r = 0.753$ and $p < 0.01$], with high scores on people's interpersonal and institutional trust is associated with high levels of scores on quality of life. Whereas, there is a small and negative correlation between people's interpersonal and institutional trust and quality of life in Tehran [$r = -0.198$ and $p < 0.01$], with high scores on Social trust associated with low levels of scores on quality of life. Additionally, the P value shows that with 99% confidence the Null hypothesis is rejected and consequently the alternative hypothesis is accepted in both Delhi and Tehran.

Forth hypothesis: There is no significant relationship between social communication and quality of life in Delhi and Tehran.

Table 2 indicates that there is a small, positive correlation between social communication and quality of life in Delhi [$r = 0.197$ and $p < 0.01$], with high levels of scores on social communication and networks associated with high levels of scores on quality of life. While, there is a medium and negative correlation between social communication and quality of life [$r = -0.476$ and $p < 0.01$], with

Table 3: Tests of between-subject effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	6136243.248a	5	1227248.650	55847.431	.000	.809
Intercept	704275673.046	1	704275673.046	32048914.512	.000	.998
XSOCIETY	3576595.393	1	3576595.393	162757.290	.000	.712
XSCR	167204.515	2	83602.257	3804.422	.000	.103
XSOCIETY* XSCR	487937.058	2	243968.529	11102.082	.000	.252
Error	1449912.099	65980	21.975			
Total	1047920459.197	65986				
Corrected Total	7586155.347	65985				

a. R Squared = .809 (Adjusted R Squared = .809)

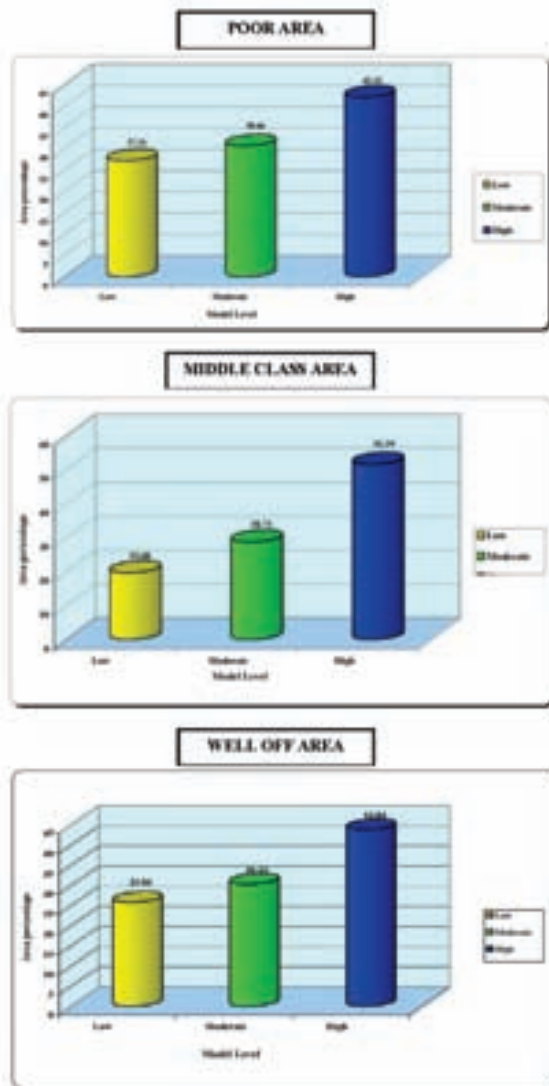


Figure 2: Empirical model's results for Delhi

high scores on social communication and networks associated with low levels of scores on quality of life in Tehran. In addition, the P value shows that with 99% confidence the Null hypothesis is rejected and accordingly the alternative hypothesis is accepted for both societies.

Fifth hypothesis: There is no significant relationship between social participation and quality of life in Delhi and Tehran.

The relationship between respondents' social participations and their quality of life was investigated using Pearson product-moment correlation coefficient. Table 2 depicts that there is a strong, positive correlation between the two variables in Delhi [$r = 0.551$ and $p < 0.01$], while there is a medium and negative correlation between peoples' social participations and quality of life in

Tehran [$r = -0.487$ and $p < 0.01$], with high scores on social participation associated with low scores on quality of life. Furthermore, the P value shows that the Null hypothesis is rejected and the alternative hypothesis is accepted for both Delhi and Tehran.

Sixth hypothesis: There is no significant relationship between social capital and quality of life in Delhi and Tehran.

The relationship between social capital and quality of life was investigated using multiple regressions. Table 2 indicates that there is a strong, positive correlation between social capital and quality of life in both societies [$r = 0.887$ and 0.826 and $p < 0.01$], with high scores on social capital associated with high levels of scores on quality of life. Additionally, the P value shows that with 99% confidence the Null hypothesis is rejected and the social capital model reaches statistical significance for both Delhi and Tehran.

Study's major hypothesis: There is no significant

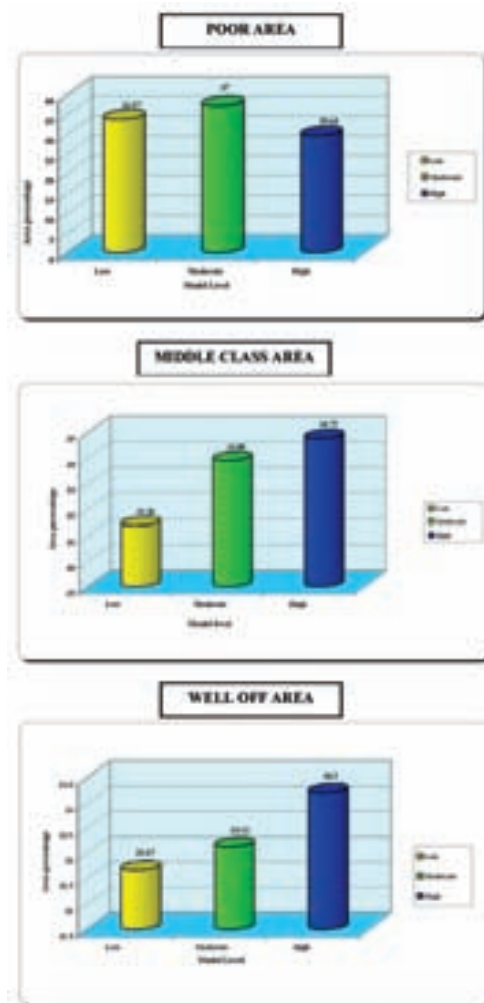


Figure 3: Empirical model's results for Tehran

difference between social capital's impact on quality of life in Delhi and Tehran.

A two-way between groups analysis of variance (Two-Way ANOVA) was conducted to compare the impact of social capital levels on quality of life in Delhi and Tehran and test the study's major hypothesis. According to Table 3 the interaction effect is significant [xscrank*xcountry: $F(2, 6598) = 11102.1, p = 0.000$]. This indicates that there is a significant difference in the effect of social capital on quality of life for Delhi and Tehran. In addition, the P value shows that the Null hypothesis is rejected and the alternative hypothesis is accepted. In addition, the profile plot in Figure 2 depicts that the higher the quality of life, the higher social capital in Delhi. Whereas the higher quality of life, the lower social capital in Tehran. The same table which is labeled Tests of Between – Subjects Effects also shows that there is a statistically significant main effect for social capital [xscrank: $F(2, 6598) = 3804.4, p = 0.000$]. This means that in terms of quality of life there is significant difference in mean scores for low, moderate, and high social capital subjects. In addition, the same table indicates that there is a statistically significant main effect for society [xsociety: $F(1, 5) = 162757.3, p = 0.000$]; this means that Delhi and Tehran do differ in terms of their quality of life scores. However, according to Cohen's (1988) commonly used criterion (0.01=small effect, 0.06=moderate effect, 0.14=large effect) the effect size for both social capital and society is large (partial eta squared= 0.103 and 0.712 respectively), additionally, this table also shows that 81% of variance in quality of life is predicted by both social capital and society (R Squared= 0.809). In addition, the model map 3 and the graphs presented in Figures 3 and 4 is also asserting that there is significant difference between

empirical models results in different localities of interest in Delhi and Tehran. For instance, Figure 3 shows us 42% of the poor and excluded area in Delhi was highly sensitive and impacted from included indicators of social capital, whereas, only 29% of the excluded and poor area in Tehran was highly impacted from included indicators of social capital in the model. In the mean time 51% of the middle class area under study in Delhi was highly impacted from social capital while 35% of the middle class area under study in Tehran was highly impacted from social capital. The same figures show that 44% of the well off area in Delhi was highly impacted from social capital whereas 34% of the well off area in Tehran was highly impacted from social capital. The Map 3 depicts the geographical distribution of the social capital impact on quality of life in both societies.

R square value in the Table 4 indicates that 77 percent of the variance in quality of life in Delhi is explained by the predictors included in the model. The same table shows that all of the five included in the model, contributed to the prediction of the quality of life and none of them excluded from the model. The Beta column in this table indicates that peoples' attitude and their view about the locality where they live has largest beta value (1.084) that means it makes the strongest unique contribution and the most important role to explain the quality of life model. At the same column, the beta value of social participation was lower (-0.446) indicating that it has second unique contribution in explaining the quality of life model. Then the social communication, social trust, and local solidarity had lower beta value (0.138, 0.195, and -0.112 respectively) and consequently lower contribution in explaining the quality of life model. Since the sig. values of five variables are less than 0.01, and then the variables are making significant

Table 4: Adapted table from multiple regressions' coefficients, model summary, and ANOVA tables for Delhi

Variables	B	Std. Error	Beta	t	Sig
Constant	81.341	0.490		166.004	0.000
view towards locality	2.948	0.019	1.084	159.113	0.000
Social participation	-1.347	0.015	-0.446	-89.419	0.000
Social communication	1.642	0.031	0.138	52.859	0.000
Social trust	0.487	0.020	0.195	24.089	0.000
Local Solidarity	-0.630	0.031	-0.112	-20.180	0.000
R ² = 0.769 F= 23240.44 sig= 0.000					

unique contribution to the prediction of the quality of life in Delhi.

Finally, according to Table 4 we conclude that accepted variables as predictors of quality of life and equation of the empirical model in Delhi are described as follows.

$$Y = a + bX_1 + bX_2 + bX_3 + bX_4 + bX_5$$

Where,

Y = quality of life

a = the intercept (constant)

b = the slope or regression coefficient(X-coefficient)

X₁ = view towards locality

X₂ = social participation

X₃ = social communication

X₄ = social trust

X₅ = local solidarity

Quality of life = 101.927 + (2.712)* view towards locality + (-1.555) * social participation + (1.079)* social communication + (0.587)* social trust + (-0.630)* local solidarity

(Note: - * refers to multiplication.)

According to the aforementioned equation and our empirical model in Delhi the optimum combination of the social capital factors shaped by five indicators of peoples view towards locality, social participation, social communication, social trust, and local solidarity proportionately.

R square value in Table 5 indicates that 68 percent of the variance in quality of life in Tehran is explained by the predictors included in the model. The same table shows that four variables out of five variables included in the model contributed to the prediction of the quality of life and only social communication has excluded from the model. In other words, it is

concluded that peoples' communication to each other is not making a significant unique contribution to the prediction of quality of life in Tehran. The Beta column in this table indicates that like Delhi peoples' attitude and their view about the locality where they live has largest beta value (0.84); that means it makes the strongest unique contribution and most important role to explain the quality of life model. At the same column, the beta value of social trust was lower (0.26) indicating that it has second unique contribution in explaining the quality of life model. Then the local solidarity and social participation had lower beta value (0.19, 0.16 respectively) and contribution in explaining the quality of life model. Finally, according to Table 5 we conclude that accepted variables as predictors of quality of life and equation of the empirical model in Tehran are described as follows.

$$Y = a + bX_1 + bX_2 + bX_3 + bX_4$$

Where,

Y = quality of life

a = the intercept (constant)

b = the slope or regression coefficient(X-coefficient)

X₁ = view towards locality

X₂ = social participation

X₃ = social trust

X₄ = local solidarity

Quality of life = (110.645) + (0.967)*view towards local + (-0.349)*social participation + (-0.324)* social trust + (0.420)* local solidarity

(Note: - * refers to multiplication.)

According to the aforementioned equation and our empirical model in Tehran the optimum combination of the social capital factors shaped by four indicators of peoples view towards locality, social participation,

Table 5: Adapted table from multiple regressions' coefficients, model summary, and ANOVA tables for Tehran

Variables	B	Std. Error	Beta	t	Sig
Constant	110.645	0.215		515.189	0.000
view towards locality	0.967	.007	0.842	135.193	0.000
Social participation	-0.349	.017	-0.157	-20.510	0.000
Social trust	-0.324	.012	-0.257	-26.712	0.000
Local Solidarity	0.420	.020	-0.193	21.086	0.000
R2= 0.68 F= 16652.76 sig= 0.000					

social trust, and local solidarity proportionately.

Discussion

Both metropolitan cities of Delhi and Tehran as the country's capital, with excellent employment opportunities and as socio-political forefront of the both developing countries have attracted people from across both countries. Therefore, they both reflect the wealth and diversity of India and Iran where in diverse religions, languages, customs and cultures co-exist in splendid plural harmony. Lack of knowledge about these characteristics always hinders the insights to gain proper outcomes for quality of life development programs for both countries' policy makers. Herein, this study attempted to investigate one of the most important factors (social capital) which is affecting on residents' quality of life in both developing societies.

Our results in this study furnished several interesting reflections in the field of research on social capital and quality of life in Delhi and Tehran.

The first aim of the study reported in this paper was to gain insight into the importance of social capital in explaining the quality of life variances in both societies. To perform this analysis, social capital was defined in a broad manner, including both cognitive and structural forms. Five indicators of social capital were distinguished as independent variables: views towards locality, local solidarity, social trust (as cognitive social capital indicators), social communication, and social participation (as structural social capital indicators). In addition, quality of life was measured by six indicators: local safety, health state, mental state, quality of environment, accessibility to social services, and economic state. The findings show that there is a strong, positive correlation between social capital and quality of life in both societies (see Table 2) [$r = 0.887$ and 0.826 and $p < 0.01$] that is, high scores on social capital is associated with high levels of scores on quality of life. In addition, findings show that R square value for Delhi (see Table 4) indicates that 77 percent of the variances in quality of life is explained by the five predictors included in the model. While, the same value for Tehran (see Table 5) show that 68 percent of the variances in quality of life is explained by the four predictors included in the model. By the way, social communication is excluded from Tehran's empirical model. The Beta column in both Table 4 and Table 5 shows that in both

societies the views and attitudes of people towards locality where they are living in as cognitive form of social capital has strongest unique contribution and most important role to explain the quality of life model.

The second aim of the study reported in this paper was to gain insight into the comparison of quality of life variances in Delhi and Tehran according to the level of social capital. To perform this analysis a Two-Way ANOVA was conducted. The findings show that there is a significant difference in the impact of social capital on quality of life for Delhi and Tehran [$\chi^2_{(2, 6598)} = 11102.1, p = 0.000$] (see Table 3). In addition, the profile plot labeled *Estimated Marginal Means of Quality of life* depicts that the higher quality of life, the higher social capital in Delhi (see Figure 2). Whereas the higher quality of life, the lower social capital in Tehran. According to the social capital literature it was expected to have a positive and linear relationship between social capital and quality of life (Bourdieu 1985; Coleman 1988, 1990; Fukuyama 1995, 1999; Putnam 1993, 2000; Woolcock and Narayan 2000), but the latter finding indicates the reverse relationship in Tehran and the more developed area has granted the lower level of social capital. That means according to Narayan and Woolcock (2000,) there is failure in making complementarity between cognitive and structural forms of social capital and there are no embedded ties between citizens in social north of Tehran and the State. In addition, more interesting findings were presented through empirical model maps and graphs (see map 3 and Figure 3, 4) which are depicting the geographical distribution of the social capital impact on quality of life in both Delhi and Tehran. The most important thing for policy makers is that the model maps and graphs show the quality and quantity of the location of the area which is either low or high sensitive to the social capital. This study tentatively illustrates that using GIS can reveal the trends, qualities, and quantities of either subjective or objective factors in ongoing policies and programs in every society.

It is concluded that there is a good source of both cognitive and structural social capital in Delhi whereas there is only good source of cognitive social capital in Tehran and the level of structural social capital is low. It is suggested that the governments as the final arbiter and enforcer of the rule of law and as the ultimate provider of the public goods

in both countries should facilitate the positive developmental outcomes. In addition, governments, in particular the government of Iran, could improve the quality of life through facilitating and enhancing the positive supportive relations between the poor and developed localities. In this context, the embedded ties among the citizens could be improved through obligation-expectation strategy between the poor and developed citizens.

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